



Physics of Everyday Objects (PHYS 129-1) – January 2027

Instructor: Dr. Lawrence Nienart

Class Schedule: Every day, 9:00 AM – 12:00 PM (Includes a 10-minute break midway through class)

Location: JSC 105

Email: nienartl@hartwick.edu | **Office:** 119 Johnstone Hall | **Phone:** 431-4737

Office Hours

- **Days:** Monday, Tuesday, Wednesday, Thursday
- **Time:** 1:00 PM – 2:00 PM (or by appointment)

Course Overview

Course Description

PHYS 129 is a 3-credit course exploring the "how-and-why" behind the workings of everyday objects. Topics include household appliances, television, electrical distribution, telephone operations, and the inner mechanics of automobiles, ships, airplanes, and spacecraft.

Prerequisite: Open only to students with no previous college physics credit.

Learning Objectives

- To deeply understand core physics concepts within the context of familiar, common objects.
- To build the capacity to correctly explain the inner workings of an object to someone who has never taken the course.
- To prepare students to comprehend and interpret new technological advancements that emerge within their lifetime.

Required Materials

- **Textbook:** Dr. Nienart's custom textbook (under continuous refinement), available at the college bookstore. Please bring your text to class daily.
- **Sketching Tools:** A pen, pencil, and highly recommended colored pencils or pens to aid in drawing mechanical diagrams.
- **Calculator:** A basic calculator capable of addition, subtraction, multiplication, division, squaring, square-rooting, and scientific notation. Note: The physics department provides calculators for in-class use, but students must supply their own for homework.

Grading & Evaluation

Grade Breakdown

- **Homework:** 25%
- **Midterm Exam:** 35%
- **Final Exam:** 40%

Exam Dates

- **Midterm Exam:** Wednesday, January 17
- **Final Exam (Comprehensive):** Friday, January 26 (Last day of classes)

Grading & Assessment Policies

- **Assessment Style:** Learning outcomes are evaluated using basic knowledge questions (including some memorization), pre/post tests on occasion, and logic/math problems that require applying concepts to new scenarios.
- **The "Bad Day" Policy:** If a student performs exceptionally poorly on the midterm but scores at or above the class average on the final exam, the grade percentages may be adjusted at the instructor's discretion to better reflect true performance. This is not a dropped exam policy.
- **Extra Credit:** No separate extra credit assignments are offered, though an extra credit question may occasionally appear on a quiz or exam.
- **Missed Exams:** Exams missed due to illness or college-sanctioned events will be handled via a make-up test or by averaging remaining test grades, entirely at the instructor's discretion.

Course Expectations

- **Mandatory Attendance:** Attendance is strictly required because all lecture material and demonstrations are fair game for exams. Repeat lectures will not be conducted during office hours for students who miss class.
- **Punctuality:** Arrive on time regardless of bad weather or off-campus living arrangements.
- **Homework Rules:** Homework assignments are due the morning after they are assigned. Late work is not graded, except in cases of severe illness (with documentation) or advanced notice for college-sanctioned events. If you need help with homework, visit the instructor's office the day *before* it is due, not right before class.
- **Collaboration:** Homework collaboration is expected, but photocopies are prohibited; each student must submit an individual paper displaying active understanding. Collaboration is strictly forbidden during quizzes and exams.

Outline of Topics

The course follows the text in sequential order:

1. **Introduction to Physics Quantities:** Precise, technical definitions of familiar terms.
2. **Conservation Laws:** Introducing the pervasive foundational laws of physics.
3. **Mechanical Applications:** Applying conservation laws to simple and complex machines.
4. **Advanced Systems:** Moving systematically into engines, household appliances, and electrical devices.

Campus Policies & Resources

AccessAbility Services: Hartwick College is dedicated to creating an inclusive learning environment. Students encountering disability-related barriers should contact Lara Sanford, Director of AccessAbility Services and Academic Inclusivity, at sanfordl@hartwick.edu to establish accommodations as early as possible.

Academic Honesty: Students must submit their own work and review the institutional standards via the [Hartwick Academic Policies Portal](#).

Title IX & Misconduct: To learn about rights and options regarding sexual misconduct, discrimination, or harassment, view the [Hartwick Title IX Documentation](#).

Mental Health Support: The Campus Counseling Center provides free, confidential assistance at (607) 431-4420 or via the website [Hartwick Counseling Center](#). Students can also contact the Heart Peer Counselors at (607) 431-5050.